

NEW SPECIES OF MOTHS OF THE SUPERFAMILY  
TINEINA FROM FLORIDA.

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I am indebted to Dr. Harrison G. Dyar for placing in my hands for rearing and determination his interesting collections of Tineina from Palm Beach, Florida, secured during January, February, and March, 1900.

Nearly all were taken in the larval state and reared by him or by the writer, or by us both.

The food plants were determined by Mr. F. Kinzel, of Palm Beach.

The following species, I believe, are new to science. All the types have been deposited in the U. S. National Museum.

Family GELECHIIDÆ.

ARISTOTELIA Hübner.

ARISTOTELIA IVÆ, new species.

(Plate I, fig. 1.)

Antennæ  $\frac{3}{4}$ ,<sup>1</sup> finely serrated, dark fuscous, annulated with white. Labial palpi very long, curved, second joint thickened with appressed scales, yellow with three black bars on outside; apical joint longer than second, acute, yellow with two black bars. Face, head, and thorax light brownish gray with a dark fuscous, central, longitudinal line on head and thorax; tegulae dark brown. Forewings with the markings of *A. rososuffusella* Clemens, but with different coloration. Ground color light silvery drab, on the outer half freely dusted with white and black scales; from costa two dark brown, nearly black, bands reaching the fold; the first from base of costa obliquely out-

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<sup>1</sup>This abbreviation, with others here used, is adopted from Meyrick's Handbook of British Lepidoptera (1895), London and New York.

ward, narrowing to a point; the other from basal third curves outward and upward to a point after having reached the fold. These spots are narrowly margined with silvery yellow. A third indistinct, triangular, costal, light-brown spot has this margination wider and is followed by a small whitish spot. Tip of wing black; cilia drab with a bunch of dark hairs in the middle. Hind-wings under 1, trapezoidal, apex produced, termen emarginate, dark gray, cilia silvery yellow. Legs yellow, on the outside barred with black.

*Venation*.—Fore-wings: 12 veins, 7 and 8 stalked, 6 separate.<sup>1</sup> Hind-wings: 8 veins, all separate.

Alar expansion, 11.2 to 11.8 mm.

Very near *A. roseosuffusella* Clemens, but larger and without any trace of red coloration.

Described from 6 females, reared from *Iva frutescens*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4932, U.S.N.M.

The larva when full grown is about 12 mm. long, very active, slender, dark purple, with 8 white wavy, interrupted, longitudinal lines; underside dark green; head yellow, with black eye-spots; it feeds in a slight web among the leaves. Moth issued March 10–20.

APROAEREMA Durrant=ANACAMPSIS (Curtis) Meyrick.

APROAEREMA CROTOLARIELLA, new species.

(Plate I, fig. 2.)

Antennæ  $\frac{4}{5}$ , slightly serrated, bluish black, with a thin, white, longitudinal line on basal third. Labial palpi long, slender, smooth, curved; second joint somewhat thickened, third joint a little longer than second, pointed; bluish black; second joint with apex white, third with three thin, white, longitudinal lines. Tongue moderate, scaled. Head, face, and thorax uniformly bluish black. Fore-wings bluish black, with sparse lighter blue metallic scales intermixed, especially toward apex; cilia dark gray. Hind-wings gray, with purple reflections, cilia 2. Abdomen black, with purple reflections; legs bluish black, with tarsi annulated with white.

*Venation*.—Fore-wings: 12 veins, 7 and 8 stalked, 6 out of 7. Hind-wings: 8 veins, 2 and 3 connate, 5 approximate to 4, 6 and 7 long stalked; apex produced, termen sinuate.

Alar expansion 8.2 to 8.8 mm.

<sup>1</sup> Lord Walsingham, in his West Indian Microlepidoptera (Proc. Zool. Soc., London, Jan., 1897, p. 66), has placed *A. roseosuffusella* Clemens and *A. pudibundella* Zeller in a division of *Aristotelia*, as he defines this genus, which has vein 6 out of vein 7 in forewing. This is a mistake, vein 6 being separate; both species, as well as the present species, *A. ira* Busck, belong to *Aristotelia* proper in the restricted sense in which Dr. Edward Meyrick uses it in Handbook of British Lepidoptera, 1895.

Described from 16 specimens, bred February 18 to March 10, from *Crotolaria pumila*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4933, U.S.N.M.

The larva, which in early stage mines and later ties the leaves together, is prettily marked; when full grown it is about 6 mm. long, cylindrical, yellowish white, with head concolorous; thoracic shield yellow with two dark-brown lateral spots; each of the following segments with two indistinct reddish dorsal spots and two very distinct darker reddish-brown lateral spots, forming altogether four longitudinal rows of spots. Pupation takes place in a slight web among the leaves.

#### GNORIMOSCHEMA new genus.

(Type, *Gelechia gallasolidaginis* Riley.)

Antennæ simple. Labial palpi; second joint large with a well-developed furrowed brush beneath; terminal joint shorter than second, more or less thickened with scales, laterally compressed, front sharp, sometimes slightly serrate, with thin scale projection above the tip. Maxillary palpi obsolete. Tongue moderate, scaled at base.

Anterior wings narrow, elongate, somewhat sinuate below apex, which is bent slightly downward.

Posterior wings a little broader than anterior wings; costa deflected downward from the middle of the wing; apex produced, termen sinuate, tornus rounded, dorsal edge straight.

*Venation*.—Forewings: 12 veins, 7 and 8 stalked, the rest separate. Hindwings: 8 veins, 3 and 4 connate, 5 approximate to 4, 6 and 7 parallel.

The parallel veins 6 and 7 in hind wing and the thickened third joint of labial palpi separates this genus, to which several described American species belong, from *Gelechia*, from which it is derived.

I make *gallasolidaginis* Riley the type because it is the largest and best-known species at present described.

#### GNORIMOSCHEMA TERRACOTTELLA new species.

(Plate I, fig. 3.)

Antennæ  $\frac{3}{4}$ , finely serrated, black, with white annulations. Labial palpi white; second joint with divided brush beneath; third shorter than second, with one black annulation just before apex. Face, head and thorax white, shoulders reddish brown. Forewings reddish brown; costa white, with two lobes of white reaching down to fold, the first narrow, pointed obliquely outward, the other large, triangular. At beginning of cilia is a costal white spot and opposite it a dorsal one. On the fold beyond the middle is a small white dot. The interval between the white lobes and spots, as well as the apical part of wing,

is freely dusted with black and purple scales. Cilia yellow, dusted with black. Hindwings purplish gray, cilia with yellowish tinge. Abdomen white with rust-red shadings; underside and legs white; tarsi with black annulations.

*Venation*.—Forewings: 12 veins, 7 and 8 stalked. Hindwings: termen sinuate, apex produced, 8 veins, 3 and 4 connate, 6 and 7 parallel.

Alar expanse, 10 mm.

Described from 4 specimens, issued March 8 to 10, from *Ica imbricata*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4934, U.S.N.M.

The larva mines the thick, fleshy leaves, eating out irregular tracks or blotches, and pupates outside the mine (in nature probably in rubbish on the ground) in a slight web. Larva is slender, cylindrical, white with dark-brown head and light-brown thoracic plate. Length, when full grown, about 10 mm.

#### NEALYDA Dietz.

*Nealyda* DIETZ, Entomol. News, Phila., XI, 1900, pp. 350, 351.

Dr. Dietz erected this genus on a single species, *bifidella* Dietz, collected in Colorado, an authentic specimen of which is before me. He places it in the Elachistidae, near Scythris, but it belongs undoubtedly in the Gelechiidae.

There are a few misconceptions in his characterization of the genus. The posterior tibiae are hairy, not smooth, and Dr. Dietz's explanation of the venation of the hindwing is in variance with his figure and not quite correct. I would give it thus: Six veins, 5 and 6 absent, cell open between 4 and 7, 7 to apex, 2 and 3 remote out of 4. What Dr. Dietz takes to be veins 5 and 6 are not true veins, but folds, and it is not the costal, but the subcostal, (vein 7) which reaches nearly to the extreme apex.

The genus is nearest *Didactylota* Walsingham (Plate 1, fig. 4), and belongs to that group of Gelechiids in which the median vein system of the hindwing is strongly developed at the expense of the middle part of the wing.<sup>1</sup> I suspect that Walsingham's *Didactylota bicolor*<sup>2</sup> from St. Vincent will be found to belong to this genus.

<sup>1</sup>As will be seen by comparing the venation of *Didactylota snellenella* Walsingham with that of the *D. kinkerella* Snellen type of the genus (Tijdschrift voor Entomology, 1876, pl. 1), it is really quite different from this and might well be separated generically. The long, very different labial palpi of *snellenella* also shows that it only temporarily has found a place in that north European genus. In fact, *Nealyda* seems nearer the type of *Didactylota* than *snellenella*, but still I think the former genus is well founded.

<sup>2</sup>Proc. Zool. Soc. London, 1891, p. 523.



## NEALYDA PISONIÆ, new species.

(Plate I, fig. 5.)

Antennæ nearly  $\frac{3}{4}$ , simple, brown with black annulations. Labial palpi second joint fuscous, white at apex, terminal joint black with a white annulation around middle. Maxillary palpi obsolete. Face, head and thorax bright golden brown. Anterior wing very thickly scaled; ground color concolorous with thorax, bright golden brown; one-third from base is a dark, rich, velvety brown, broad fascia, sharply defined on both sides, darkest, nearly black, and somewhat broader at the dorsal edge, where it terminates in slightly raised scales, projecting outside the edge of wing in a dorsal tooth, and forming in the living insect at rest a curious hump on the back. This fascia is still more thickly scaled than the rest of wing. A little more than the apical third of wing is densely dusted with black scales, which condense into four, all black, velvety spots, one large costal spot, one-third from apex reaching down to fold, one smaller apical, one moon-shaped at tornus, and a small round dot between the two latter. The last three are internally edged by light silvery scales forming an indistinct, thin, open V, with the point toward apex. Cilia very heavy and cut off nearly perpendicular, giving the wing the appearance of being very broad. This, together with the robust body, gives the moth a certain resemblance to a Tortricid. Hindwings bilobed, three-fifths as wide as forewings, purplish grey with silvery reflections; cilia lighter. Abdomen dark purple with metallic reflections. Legs and underside of thorax straw-yellow with sparse purple scales intermixed; tarsi black with yellow annulations. Posterior tibiæ with long yellow hairs above.

Alar expanse: male, 7 mm.; female, 8.2 mm.

Described from 2 specimens, reared February 2 and February 18, 1900, from mines on *Pisonia aculeata*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4935, U.S.N.M.

Egg is laid at the midrib on the upper side of the leaf and the mine is a more or less irregular, large, trumpet-formed blotch on the upper surface with the black frass scattered in the middle of the mine. The larva is, when full grown, cylindrical, somewhat flattened, strongly segmented, and tapering backward, about 7 mm. long. It has three pairs of normal thoracic feet, four pairs of abdominal feet suggesting the toes of a tree frog, being very long and thin with a globular swelling at the end; while in the mine they are pointed backward, flat to the body; no anal legs. Larva is white with light-brown head and thoracic plate; sutures in head darker brown. When mature it cuts its way out of the mine and spins nearby on the leaf a tough, oval, flat, white cocoon, from which the pupa does not protrude, when

imago issues. Some of the larvæ spun their cocoons inside the mine, but this is probably not the rule under natural conditions. Pupa stage lasted in warm room (approximately normal temperature for the insect) about eighteen days.

NEALYDA KINZELELLA, new species.

Antennæ  $\frac{3}{4}$ , finely serrate, dark fuscous with indistinct whitish annulations. Labial palpi yellowish brown with black shadings beneath. Face and head light yellowish brown. Thorax light rich brown; basal half of forewing light brown, the color gradually becoming darker outwardly and terminating in a deep velvety brown, transverse fascia at middle of wing, on the outside edged with a thin line of white scales. The fascia is more thickly scaled than the rest of the wing and protrudes in a small dorsal scale tooth. Ground color of apical half of wing silvery white, thickly suffused with black, fuscous and bluish scales. An ill-defined group of dark scales at beginning of cilia is edged below with a few brown scales; another at apex also has a few brown scales below; at tornus a nearly black spot. Entire apical edge nearly black; cilia silvery grey overlaid with black atoms. Hindwings silvery grey. Abdomen purplish black; underside silvery; legs light brown with black bars on the outside, tarsi with black annulations.

Alar expanse, 5.5 to 6.5 mm.

Described from 5 specimens, reared from upper surface, trumpet-formed blotch mines on leaves of *Pisonia obtusata*.

Collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4936, U.S.N.M.

This species is very near to the type of the genus, *bifidella* Dietz, but besides minor colorational differences it is a much smaller insect.

Egg is laid on upper side of leaf. Larva, when full grown, is 4.5 mm. long; looks through the leaf like a *Lithocolletis* larva of the flat type. Also the mine might be mistaken for a *Lithocolletis* mine. Cocoon outside mine on leaf snow white, oval, flat, very densely spun. Pupa not protruding when imago issues.

I have named this species in honor of the botanist, Mr. F. Kinzel, to whom I am indebted for all but one of the plant identifications.

ANACAMPSIS Curtis = TACHYTILIA (Heinemann)  
Meyrick.

ANACAMPSIS LAGUNCULARIELLA, new species.

(Plate I, fig. 6.)

Antennæ light brown with darker annulations. Labial palpi very long, smooth, recurved; second joint thickened with appressed scales, deep black, apex light brown; third longer than second, yellowish

brown. Tongue moderate, scaled, black. Face, head, thorax, and forewings yellowish brown with sparse, scattered, black scales. Extreme base of costa black; at middle of wing a triangular black costal spot, sometimes followed by a smaller indistinct collection of black scales at costa at apical third. Sometimes this latter is wanting; intervals between veins depressed, and in these depressions, one in each, is a row of 4 to 6 small black dots around apex. Cilia ashy brown, with two indistinct, darker, transverse lines. Hindwings dark purplish grey. Cilia lighter. Abdomen and legs purplish black with a yellowish sheen; hairs on posterior tibia yellow; tarsi with narrow yellow annulations.

Alar expanse, 15 to 16 mm.

Described from 10 specimens, reared by Dr. Dyar at Palm Beach, Florida, from *Laguncularia racemosa*, on which it ties the leaves.

*Type*.—No. 4937, U.S.N.M.

Larva slender; when full grown about 13 mm. long; white, with dark-brown head, lighter mandibles, reddish first thoracic segment and black thoracic plate. Warts small, black, emitting long white hairs.

#### ANACAMPSIS ARGYROTHAMNIELLA, new species.

Antennæ stone white with narrow black annulations. Labial palpi very long, smooth, recurved. Second joint thickened with appressed scales, stone white; third longer than second, light fuscous. Face and head stone white. Thorax and forewing stone grey with scattered black atoms. Three white dots on disk, one at middle of wing below the fold, two above the fold farther outward. Just before apex an ill-defined, but quite distinct, outwardly angulated, white fascia. Cilia yellowish-grey. Abdomen grey, with silvery luster. Anal tuft yellow. Legs yellowish-grey. Forelegs with fuscous shadings and tarsi indistinctly annulated.

Alar expanse, 16 mm.

Described from 6 specimens, reared by Dr. Dyar at Palm Beach, Florida, from *Argyrothamnia blodgettii*.

*Type*.—No. 4938, U.S.N.M.

Larva is a leaf tier; when full grown about 14 mm. long, greenish white with the ten piliferous warts on each segment shining black, emitting short dark hairs. Head and thoracic plate polished black, mandibles reddish brown.

## TRICHOTAPHE Clemens.

## TRICHOTAPHE MELANTHERELLA, new species.

(Plate I, fig. 7.)

Antennæ purplish brown. Labial palpi long, smooth, curved. Second joint thickened with appressed scales, third as long as second; shining dark purplish brown, extreme tip yellow. Face, head, and forewing unicolorous, deep purplish brown, nearly black, with a satin luster. Before middle of wing, near dorsal margin, is a short black streak, edged anteriorly and posteriorly with a few white scales. At the end of the cell is a small round black dot, slightly edged posteriorly with white; a scarcely perceptible, outwardly angulated, narrow fascia of a paler shade at apical fourth terminates in a yellowish costal streak. Cilia dark purple. Hindwing dark purplish gray; cilia a shade lighter.

*Venation*.—Forewing: 12 veins; 2 and 3 stalked, 7 and 8 stalked. Hindwing: 8 veins, 3 and 4 short-stalked, 5 approximate, 6 and 7 connate, discal vein nearly obsolete.

Abdomen purplish black, anal tuft yellow; legs silvery fuscous.

Alar expanse, 12.5 to 13 mm.

Described from 11 specimens from material collected by Dr. Dyar at Palm Beach, Florida. Food plant *Melanthera deltoidea*.

*Type*.—No. 4939, U.S.N.M.

It is near *T. juncidella* Clemens.

Larva when full grown is about 12 mm. long, very prettily marked. Front of head light brown, posteriorly black. Next 5 joints rich brown, thoracic shield lighter brown, edged with black. First and second abdominal segments (the last two brown ones) with large transverse dorsal velvety black spot. Remaining segments green; segments 7 and 8 (head counted as the first) with black semicircular line across pointing backward and reaching down to abdominal legs; also a short transverse black dorsal line behind the curved one; segment 9 all black above; rest of segments with the black predominating in streaks and dots. All legs black. It lives within a roomy fold made of edge of leaf turned down or sometimes of an entire leaf of above plant.

Imago issued during early March.

## TRICHOTAPHE CONDALIAVORELLA, new species.

Antennæ  $\frac{3}{4}$  finely serrate, shining bronze. Labial palpi second joint smooth, flattened laterally, considerably thickened toward apex with hairs above and below and cut off sharply at end—approaching the palpi of *Ypsolophus*; third joint erect. Second joint deep black with apex light yellow, third joint fuscous. Face, head, thorax and basal

half of costal edge of forewing brown. Forewing greenish gray, thickly suffused with dark fuscous scales. Five indistinct dark fuscous spots on disk, one on fold at one-fourth from base, one above and one below fold in middle of disk and one above and one below fold at end of disk; the latter smallest, but darker and more distinct. At beginning of costal cilia a very indistinct, double, transverse, whitish V-shaped line and along apical edge 6 or 7 small black dots. Hindwing dark bluish gray with silvery reflections, half transparent, veins darker, cilia gray.

Abdomen purple; entire under side black; legs black; posterior tibiae above yellowish.

*Venation*.—Forewing: 12 veins; 2 and 3 stalked. Hindwing: 8 veins, 3 and 4 short-stalked; 5 approximate, 6 and 7 connate.

Alar expanse, 16 mm.

Described from two males and one female reared from *Condalia ferrua*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4940, U.S.N.M.

Dr. Dyar says:

The larva at first stitches together any overlapping leaves of its food plant; later it folds over a leaf, and finally pupates in such a folded leaf. The mature larva has a reddish head with a whitish labrum; body somewhat flattened, green, with reddish cervical shield, a green dorsal and subdorsal line; tubercles and a lateral dash on joints 3 and 4 black.

### Family CECOPHORIDÆ.

#### DEPRESSARIA Haworth.

#### DEPRESSARIA AMYRISELLA, new species.

(Plate I, fig. 8.)

Antennæ  $\frac{3}{4}$  finely serrate beneath, basal joint with pecten, dark metallic greenish brown. Labial palpi second joint rough beneath, yellowish white with black base and black scales intermixed, toward apex with a rose or brick red tinge; terminal joint shorter, yellowish with black tip. Tongue well developed, whitish. Face yellow with a few brown scales; head with erect scales, yellow at base, purplish black toward tip, tips reddish white. Thorax yellowish brown with violaceous scales intermixed and with a transverse crest of six tufts of raised scales. Forewing dark violaceous brown with sparse black scales; extreme dorsal base purplish black, at basal third a collection of purplish-black scales; at end of cell a small round white dot, black-margined on both sides. Costal and apical edge lighter brown, with five costal and six to eight smaller apical black dots. Cilia yellowish brown. Hindwing light shining yellowish brown, edge blackish, cilia lighter. It belongs to the section with veins 2 and 3 in forewing



stalked. Abdomen somewhat flattened, dark yellowish brown. Legs light yellowish brown on the outside with purple scales intermixed.

Alar expanse, 16 to 17 mm.

Described from 5 specimens, reared by Dr. Dyar at Palm Beach, Florida, from *Amyris floridana*.

*Type*.—No. 4941, U.S.N.M.

According to Dr. Dyar "the larva lives in a folded young leaf with a round hole at petiole, lined with silk." Head black, body yellowish, cervical shield pale orange color. It pupates within the fold.

### Family BLASTOBASIDÆ.

#### BLASTOBASIS Zeller.

(Type, *Ecophora (Scythris) phycidella* Zeller.)

#### BLASTOBASIS GUILANDINÆ, new species.

(Plate I, fig. 9.)

Antennæ dark fuscous, basal joints yellowish; in the male strongly notched beyond first joint, with pecten on this joint; shortly ciliated in its entire length; in female simple, basal joint with pecten. Labial palpi smooth, curved, slender, dark fuscous; tips somewhat lighter. Tongue stout, scaled at base, coiled at the end. Head and thorax yellowish fuscous; forewing dark fuscous with a somewhat lighter shade before apex and along costa. A small deep black spot on middle of cell; two similar black spots at end of cell, one above the other; below these an indistinct blackish spot and similar indistinct blackish spots along the apical edge. Cilia yellowish fuscous. Hindwing shining yellowish fuscous.

Abdomen shining dark fuscous; anal tuft yellow; underside whitish, speckled with dark fuscous. Legs yellowish with fuscous shadings on the outside; hairs above posterior tibiæ ashy yellow.

*Venation*.—Forewing: 12 veins; 7 and 8 stalked. Hindwing: 7 veins; 4 absent, 3 and 5 stalked, 6 and 7 parallel.

Alar expanse, 14 mm.

Described from 1 male and 1 female bred March 30, 1900, from stems of *Guilandina bonducella*, collected by Dr. Dyar at Palm Beach, Florida, March 5, 1900.

*Type*.—No. 4942, U.S.N.M.

Larva is robust, white, with brown head and thoracic plate. It bores in the stem and pupates outside in a slight web.

There are two other species of true *Blastobasis* in the collected material from Palm Beach, but not in sufficiently good condition to describe.

## Family ELACHISTIDÆ.

## COSMOPTERYX Hübner.

## COSMOPTERYX IPOMOEÆ, new species.

Antennæ dark greenish brown with a thin, white, longitudinal line on basal half; the three last joints are white, the five following black, and the next joint (ninth from apex) is white. Labial palpi, shining greenish black. Head and thorax dark greenish brown, nearly black, with one very faint central line white. Forewing unicolorous with head and thorax. Beyond the middle is a broad, pale straw yellow fascia, slanting from costa outwards. This is preceded by two bright-golden metallic spots, the costal one dark margined, and, on account of the form of the fascia, nearer the base of wing than the dorsal one. On the other side of the fascia is another dark-edged golden costal spot, and right opposite, in the yellow fascia, a dorsal one; between these the yellow fascia flows out in a bilobed process into the dark apical part of the wing.

In the basal half of the wing are three very faint, thin, white longitudinal lines, all more or less interrupted, the central one being the most distinct, and this is continued on the other side of the fascia to apex as a more pronounced white streak. Cilia dark brown. Hindwing dark brown, with green reflections; cilia lighter. Abdomen purplish black above, each segment edged with silver; anal tuft silvery; underside silvery white.

Posterior tibia black, with a longitudinal, winding, white line; tarsi black with white tips.

Alar expanse. 8 mm.

Described from two specimens reared from *Ipomœa* leaves, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4943, U.S.N.M.

The mines were found numerously, together with *Bedellia minor* Busck (see p. 243), and is somewhat similar to these in appearance, consisting of clear, irregular blotches; but is distinguished from them by short silk-lined galleries inside the mine, in which the larva retreats when disturbed.

Larva is, when young, white with yellow head and dark eyespots and mandibles; when mature it measures about 7 mm., and has three wine-red longitudinal stripes, one dorsal and two lateral, all rather narrow.

It pupates in an inconspicuous, matted, flat cocoon outside the mine.

## COSMOPTERYX NIGRAPUNCTELLA, new species.

Antennæ drab colored, basal half with a thin longitudinal white line, lighter, nearly white, toward tip. The last joint is black, and

there are four small (two joints in each) black annulations on apical half. Labial palpi very long, light drab colored, with extreme tips black. Face whitish drab. Head drab, with a central, longitudinal, silvery line; thorax same color with three longitudinal, silvery lines. Forewing very long and slender, twice as long as abdomen; basal half concolorous with head and thorax, with three longitudinal, white lines, of which only the upper two begin right from base. The rest of the wing creamy white with a deep black, silver-edged dot at the end of cell; a narrow costal and dorsal streak of drab form a thin fascia at apical fourth, and the costal edge of the tip is drab. Cilia light drab. Abdomen golden, legs silvery drab.

Alar expanse, 11 mm.

A large and slender, very distinct species, described from a single captured male specimen, collected by Dr. Dyar at Palm Beach, Florida, in January, 1900.

*Type*.—No. 4944, U.S.N.M.

#### ANTISPILA Hübner.

##### ANTISPILA EUGENIELLA, new species.

Antennæ purplish black. Palpi, face, head, thorax and forewing shining dark purple; on middle of forewing a golden metallic fascia, narrow at the dorsal edge, three times as wide at costa. Cilia purplish black. Hindwing dark gray with metallic reflections; abdomen dark purple below, with silvery edging at each joint; legs dark purple outside, inside silvery. Tarsi silvery with purple annulations.

Alar expanse, 3.8 mm.

Described from a single specimen, bred February 25, 1900, from *Eugenia* sp., collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4945, U.S.N.M.

Larva makes an upper blotch mine on leaves of *Eugenia*, and cuts out an oval case (3.5 by 2.8 mm.), which falls to the ground.

##### HOMALEDRA, new genus.

(Type, *Homaledra heptathalama* Busck.)

Antennæ longer than forewing, stout, smooth, simple, scaled at base; basal joint enlarged, somewhat flattened, and with thick covering of scales, projecting backward. At rest they are kept alongside the body under the wings. Labial palpi with second joint very long, nearly straight, porrected, smooth, thin at base, greatly thickened at apex, ending abruptly with projecting scales; terminal joint short, erect, smooth. Tongue scaled at base. Head elongated, face retreating. Anterior wings elongate ovate. Hindwing elongate ovate; cilia 2. Legs short; posterior tibiae clothed with long hairs above.

*Venation*.—Forewings: Twelve veins; 7 and 8 connate or stalked, 7

to apex, 1c furcate. Hindwings: Eight veins; 8 separate, 7 separate, 5 and 6 stalked on independent vein from base, cell open between 4 and 5.

**HOMALEDRA HEPTATHALAMA** new species.

(Plate I, fig. 10.)

Antennæ silvery yellow; basal joint and the sealed base rust red. Labial palpi, second joint light straw colored, terminal rust red. Eyes deep black. Face whitish with an iridescent hue. Head and thorax straw yellow, sides of head and shoulders rust red. Anterior wings light straw yellow with a narrow edging round the entire wing of dark brown, outside which the extreme costal and apical edge and cilia is rust red. On middle of wings a longitudinal, large, comma-shaped, silvery spot, and at the end of the disk a smaller, nearly circular silver spot, both dark edged. There are, besides, three more or less pronounced longitudinal streaks of dark brown, one above and two below the silvery spots, and in some specimens even the veins are shown in brown; but in other specimens all these interior brown streaks are obsolete, except right at the base of the wing.

Dorsal cilia reddish yellow. Hindwings shining golden yellow; cilia a shade lighter. Abdomen golden yellow. Forelegs deep black above; other legs whitish straw colored; hairs above posterior tibia rust yellow.

Alar expanse, 19 to 26 mm.

Described from 8 specimens bred from cabbage palmetto (*Sabal palmetto*) collected by Dr. Dyar and Mr. F. Kinzel at Palm Beach, Florida.

*Type*.—No. 4946, U.S.N.M.

The larva is, when full grown, 15 to 18 mm. long, cylindrical, with normally developed thoracic and abdominal feet. Color white, with polished head, reddish-brown mandibles and eye-spot, and rather long, sparse, white hairs.

It feeds on the underside of the palmetto leaf in a fold, making a very unique chambered abode of its frass (or of the chewed epidermis) (Plate I, fig. 11). It begins by making a small elongate chamber and adds, as it grows, successively larger, more or less rectangular, thick-walled, communicating rooms to its house, the entire length of which is  $1\frac{1}{2}$  to 2 inches, and which when finished contains 7 (or sometimes 8) chambers; hence the name of the insect.

It pupates inside its case, and the moth issues through a round hole in the last chamber. This is different from the other chambers, being rather loosely built. The other chambers are very firm, smoothly finished outside, dark brown. The pupa is brown, very slender, antennæ and wing-cases reaching only halfway down the abdomen. Pupa skin is not protruded at issue.

The moth at rest sits pressed flat to its support, second joint of labial palpi and sides and ends of wings closely applied to it.

The insect seems to be quite common where it is found, and one palm leaf may contain several cases.

The genus is given the character "7 and 8 in forewing connate or stalked," so as to include the common palmetto feeder (*Laverna sabalella* Chambers, which naturally belongs here, and which has a similar, although not so specialized, habit as *heptathalama*. *Sabalella* has all the characters of the genus and differs only from the type in veins 7 and 8 being stalked, instead of connate. As it is a less specialized and a smaller insect the characters are less pronounced, and I therefore make the larger form the type of the genus.

### Family TINEIDÆ.

#### NEPTICULA Zeller.

#### NEPTICULA CONDALIAFOLIELLA, new species.

Face and head tufted, reddish yellow, eyecaps shining white. Antennæ dark fuscous. Thorax and forewing deep black with purplish metallic reflections; just beyond the middle of wing is a transverse silvery white fascia, a little broader on the dorsal margin than on the costal. Cilia at apex white; dorsal cilia light purplish-gray concolorous with hindwing. Abdomen black above, silvery below; anal tuft silvery white. Legs reddish yellow.

Alar expanse, 3.1 mm.

Described from three specimens bred February 22, 1900, from upper mines on leaves of *Condalia ferrea*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4947, U.S.N.M.

Egg is deposited on underside of leaf near edge, and the mine is a contorted serpentine with black frass in a continuous central line. Cocoon is chestnut brown, 1.6 by 1 mm.

Of the described American species it comes nearest *N. apicialbella* Chambers, the description of which very nearly agrees with this species. Chambers's measurement,  $\frac{5}{32}$  inch, and his type specimen in U. S. National Museum, shows, however, that *apicialbella* is a larger species which has relatively broader wings and broader fascia.

#### NEPTICULA MYRICAFOIELLA, new species.

Antennæ silvery fuscous, extreme tip white. Face and head tufted, light golden yellow. Eyecaps silvery white. Thorax and forewing deep bluish black with strong metallic reflections. At two-thirds from base is a transverse, silvery white fascia, a little broader on the dorsal than on the costal edge. Dorsal cilia at the fascia white; rest of



cilia dark purplish gray. Hindwing light gray. Abdomen shining black above, silvery below. Legs purplish. All tarsi white.

Alar expanse, 2.8 mm.

Described from two specimens, bred from upper serpentine mines on *Myrica cerifera*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4948, U.S.N.M.

LEUCOPTERA Hübner=CEMIOSTOMA Zeller.

LEUCOPTERA ERYTHRINELLA, new species.

Antennæ fuscous, nearly as long as forewing. Maxillary and labial palpi absent. Face, head, eyecaps and thorax shining pure white. Forewing shining white; from middle of dorsal margin outward and upward to fold an oblique streak of sparse, fuscous scales, opposite which is a small indistinct costal streak of the same hue, together forming a V with the point toward apex. Three indistinct fuscous streaks within costal cilia and a large patch of somewhat darker fuscous scales on the dorsal edge of the wing near apex. Cilia and hindwings pure white; legs white with yellowish tarsi.

Alar expanse, 5 to 5.2 mm.

*Type*.—No. 4949, U.S.N.M.

Described from five specimens, bred February 10 to 20, 1900, from material collected by Dr. Dyar, at Palm Beach, Florida.

Egg is laid on underside of leaves of *Erythrina herbacea*, and the mine begins on the upper side as a short serpentine track, but soon broadens out in a large irregular blotch, often obliterating the early part of the mine. Frass black, scattered. When full grown the larva is 4.5 to 5 mm. long, cylindrical, somewhat flattened, first and second thoracic segments enlarged, body tapering backward. Color white, with light-brown mandibles and two small black lateral spots on first thoracic segment.

Pupates in "hammock" outside the mine on leaf in a glistening white oblong cocoon spun under an equally showy white bridgework of longitudinal silken bands. One leaf often contains several mines.

LEUCOPTERA GUETTARDELLA, new species.

Antennæ yellowish silvery; eyecap shining silvery white. Palpi absent. Head and thorax white. Forewing shining white, from costal two-thirds to middle of dorsal margin an oblique, golden, narrow fascia, black margined externally; from same point on costa to tornus is another similar golden fascia, also black margined externally, together with the first forming a V turned upside down; parallel with the latter fascia is a green costal streak, a little farther out toward apex, and still nearer apex is a small golden spot. At extreme apex is a small circular black dot and at tornus around the base of the second

golden fascia is an aggregation of black scales. Cilia golden white with a thin black line parallel with the dorsal edge.

Hindwings and cilia white. Abdomen sparsely scaled, yellowish, with the scales silvery. Legs silvery, anterior tibiae and tarsi and posterior tarsi fuscous on the outside.

Alar expanse, 5 mm.

Described from a single specimen, reared from *Guettarda Aleptica*, collected at Palm Beach, Florida, by Dr. Dyar.

*Type*.—No. 4950, U.S.N.M.

Larva first makes a crooked narrow mine with the black frass in a continuous central line. Then the mine broadens out in an underside blotch, visible about as much on upper side and usually confined between two veins, which makes it more or less quadrangular, often entirely obliterating the early part of the mine.

Larva, when mature, is about 3.5 mm. long, somewhat flattened. It leaves its mine through a slit on the underside and spins its snow-white cocoon in a small fold at the edge of the leaf, under but few longitudinal silken threads. The food plant was kindly determined by Mr. C. L. Pollard, of the U. S. National Museum.

#### PODIASA, new genus.

(Type, *Podiasa chiococcella*, Busck.)

Antennae a little longer than forewing, simple, basal joint flattened to form a large eye cap. Labial palpi long, curved, smooth, terminal joint as long as second. Maxillary palpi obsolete. Tongue present, weak. Face and head smooth. Anterior wings ovate, obtusely rounded at apex. Hind wings elongate ovate, obtusely rounded at apex. Posterior tibiae and beginning of tarsi with heavy bunches of hairs above and below. The moth sits with the hinder part obliquely raised from the surface, face closely applied to it, forelegs stretched forward in front and wings roofed over the body. Antennae extended along the body under the wings and reaching a little outside the apex of these.

*Venation*.—Fore wings: 11 veins, 5 absent, all separate, 7 to costa; above the end of the cell is a secondary cell which emits veins 9 and 10; 1b simple. Hind wings: 8 veins, all separate.

In spite of the totally different wing form and the presence of labial palpi, the genus reminds one strongly of *Leucoptera* in general habitus, as in mine and cocoon, but its true affinities are uncertain to me.

#### PODIASA CHIOCOCCELLA, new species.

(Plate I, fig. 12.)

Antennae yellowish silvery, light fuscous toward tip, basal joint with large silvery white eye cap. Labial palpi silvery white. Eyes deep black both in living and in dead specimens. Head and thorax

silvery white, thorax with two longitudinal light golden yellow streaks. Forewings silvery white, on the apical half overlaid with light and dark fuscous scales. These are arranged in irregular groups and wavy lines, differing somewhat in different specimens, but generally there is found a dark group at basal two-thirds just below costa, which emits a dark streak inward and downward and two short ones upward to costa. Besides these a transverse row of dark scales a little nearer apex and a dark line parallel with the apical dorsal edge are rather constant in all specimens. Just before apex of the dorsal edge is a small round black dot, and the narrow edge around the apex is brown. In some specimens the fuscous scales are also sparsely suffused over the basal half of the wing, especially on the dorsal part, but in most specimens this is pure white.

From base of wing to apical edge are two longitudinal narrow lines of light golden yellow, concolorous with the streaks on thorax. These lines are obscured from the middle of the wing outward under the fuscous scales, but reappear with a somewhat deeper golden color at apex, where there are rather few dark scales; the upper line contains the black apical spot. The earliest bred specimens were the most white, with the fuscous scales light and limited to the apical half of the wing; the later bred specimens were more suffused and more darkly irrorate with the fuscous scales. Cilia yellowish gray at the tip, with a dark line parallel with the dorsal edge. Hind wings and cilia shining silvery white, abdomen yellowish, clothed with sparse silvery white scales. The males sometimes displayed their sexual organ, which was pointed downward and looked like the pappus on a dandelion fruit, consisting of a stalk about 2 mm. long, on the end of which was a globe of white hairs about 1 mm. long. Legs silvery white, with ends of all points light fuscous. Front tibia rough-haired at apex. Posterior tibia with heavy light fuscous tufts above and below; beginning of tarsi with long fuscous hairs, especially above.

Alar expanse. 8 to 10 mm.

Described from more than 20 specimens, bred from *Chiococca racemosa*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4951, U.S.N.M.

Egg is laid on underside of leaf at the midrib. Mine begins as a long, narrow, serpentine, and broadens out suddenly in a large irregular, whitish, half-transparent blotch, equally visible on both sides of the leaf. The black frass is scattered irregularly. The larval characters are very strange. Up to its last larval molt it is slender, moniliform with the first thoracic segment twice as broad as the head, from thence gradually tapering backward. No trace of either thoracic or abdominal feet. The head is flat, brown, the body white; first thoracic segment with the large semilunar shield black; each of the other segments with one dorsal and one ventral large shining black

spot, triangular and smaller on the second and third thoracic segments, rectangular on the others; hairs white. When fully grown, it is about 9 mm. long, casts its skin in the mine and assumes its last larval form, in which it does not eat and which is strangely different from the former stage. Now the color of the head is shining black and the thoracic shield creamy yellowish white. Body very dark purplish red, each segment with a conspicuous lateral spot concolorous with the thoracic shield. But, stranger still, now both the thoracic and the abdominal feet are normal, well developed. The larva cuts a slit in the epidermis and comes out, moving freely about in a looping manner like a geometrid, for which it might easily be mistaken if the number of feet is not observed. It pupates in a fold at the edge of a leaf or in any suitable corner in a roomy glistening white cocoon.

COPTODISCA Walsingham=ASPIDISCA Clemens.

COPTODISCA CONDALIÆ, new species.

Antennæ fuscous,  $\frac{1}{2}$  of forewing. Palpi, face, head, thorax, and basal part of fore wing silvery white, in some lights, with golden reflections, especially on vertex. Apical half of forewing golden yellow, with a costal and a dorsal silvery white streak at the beginning of the cilia, nearly uniting so as to form a fascia, black margined on both sides. Just behind is another costal white spot, also black margined behind, and at apex is a large velvety black triangular spot. Outer dorsal edge of wing black. Cilia silvery white, with a single black pencil of hairs at apex continued from the apical black spot. Hindwing dark grey with silvery reflections; cilia paler with golden reflections. Abdomen black above; underside of body silvery white; legs silvery.

Alar expanse, 3.4 to 3.7 mm.

Type.—No. 4952, U.S.N.M.

Described from nine specimens, bred February 12-24 from upper mines in leaves of *Condalia ferrua*, collected by Dr. Dyar at Palm Beach, Florida.

Egg is laid on underside of leaf at the midrib. The mine begins as a short, gradually broadening upper serpentine one, filled with black frass, and ends in a transparent nearly circular blotch, the sides of which the larva cuts out and uses as a case, which is fastened by one short silken band to a leaf or twig. Case is oval, 3 by 1.5 mm. Several mines often found in one leaf. Larva is cylindrical, first and second thoracic segments broad and flattened, body tapering backward. Head is light brown, small, retractile into the first thoracic segment; thoracic shield and anal plate dark brown; body greenish white with a large dorsal and ventral dirty gray spot on each segment. Feet obsolete. This species is very near *C. splendoriferella* Clemens, but has the black in forewing less pronounced both in extent and shade.

## BUCCULATRIX Zeller.

## BUCCULATRIX IVELLA, new species.

Antennæ silvery gray with darker annulations; eyecaps large, speckled with light brown. Palpi obsolete. Face smooth, white. Tuft on head in front white, above speckled with light brown. Thorax fuscous. Forewings light ferruginous gray, mottled with brown and fuscous. At beginning of costal cilia is a longitudinal streak of dark fuscous; opposite on the dorsal edge another similar streak, and at apex a third one. A line from base of wing to this last streak just above the fold is light gray, unmottled, while on the fold is a much speckled line; both of these two longitudinal lines, however, are in some specimens interrupted and effaced. Cilia light gray; headwing and cilia silvery gray. Underside of body light yellowish, legs yellow, tarsi nearly white annulated with black.

Alar expanse, 6.5 to 7.5 mm.

Described from 12 specimens, bred from *Ica frutescens*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4953, U.S.N.M.

The larva at first mines the leaves; afterwards it feeds unprotected on the underside of the leaves. In the latter period it is dirty white with black hairs, head yellow with black eye marks and brown mandibles, tubercles polished white. When full grown about 5.5 mm. long. It reminds one in general appearance very much of the larva of *Plutella maculipennis* Curtis (*cruciferarum* Zeller). The cocoon is of the usual *Bucculatrix* form, pure white, about 6.5 mm. long.

## BEDELLIA Stainton.

## BEDELLIA MINOR, new species.

If I had received the types of this species for determination, I should surely have pronounced them small specimens of the common *somnulentella* Stainton, and the knowledge of its food-plant would naturally strengthen this belief.

Fortunately, however, I received larvæ in all stages, and although they also at a superficial examination might be taken for *somnulentella* there are distinct and constant differences aside from the smaller size, and it is undoubtedly a distinct form, developed through long isolation from the cosmopolitan species.

Antennæ as long as forewing, white with black annulations, basal joint enlarged, with large dense pecten beneath, yellowish speckled with black. Labial palpi short, drooping, yellow. Face whitish. Tuft on head reddish yellow with tips of hairs fuscous. Thorax whitish yellow. Forewing light grayish yellow sprinkled with black and fuscous scales, most thickly on apical two-thirds; basal one-third only



slightly darkened with fuscous; dorsal margin about as much sprinkled with dark scales as the rest of the wing. Hindwings dark gray, cilia lighter yellowish.

Venation is identical with that of *somnulentella*. Abdomen above dark gray, below silvery yellow with black atoms. Anal tuft ochreous; legs yellow, speckled with black, silvery white on the inside; hairs on posterior tibiae whitish ochreous; tarsi annulated with black.

Alar expanse, 6 to 6.6 mm.

Described from 12 specimens, bred from *Ipomœa*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4954, U.S.N.M.

The species is of a lighter, more yellowish color than most specimens of *somnulentella*. The dorsal unspeckled streak generally found in *somnulentella* is in this species unicolorous with the rest of wing, while the basal part of the wing is more sparsely speckled. Still these points are somewhat variable in *somnulentella*, but of a very large series of *somnulentella* none were as small as the largest *minor*.

Larva feeds in exactly the same fashion as the cosmopolitan species, making irregular clear blotches; the angular pupa is identical in form, possibly a little more robust, and is exposed, attached by the extremities to silken threads.

Larva differs from that of *somnulentella* in the absence of the lateral, yellowish white, polished tubercles, which are found in *somnulentella* on joints 5, 8, and 9, and the subdorsal series of purple spots is very much less pronounced, the entire larva being more uniformly greenish purple.

There is no possibility of the small size being due to unnatural conditions by transferring the larva from the tropical climate northward, as Dr. Dyar bred exactly similar small moths—and nothing but these—on the spot. Besides a very large number of larvæ were examined carefully by the writer and the differences were found to be constant.

#### METRIOCHROA, new genus.

(Type, *Metriochroa psychotriella* Busck.)

Antennæ a little longer than forewing, simple, basal joint with small pecten beneath. Labial palpi moderate, smooth, slightly curved, in the living insect erected in front of face, in dry specimen porrected, or drooping; second joint with scales projecting at apex, terminal as long as second, rather blunt. Maxillary palpi small but distinct, slightly curved upward, in dead specimen drooping. Tongue moderate, spiraled. Face and head smooth. Forewings elongate, lanceolate, pointed, cell very long. Hindwings very narrow setiform.

Antennæ and middle legs smooth with end of tibiæ thickened. Posterior tibiæ clothed with long spiny hairs above; inner spurs twice as long as outer spurs.

*Venation*.—Fore wings: 9 veins, 3 and 4 absent, 6 and 7 stalked, 7 to costa, 11 absent, 1 simple. Hind wings: 4 veins, 7 to apex, 6 out of 7; median system represented by a single vein. Cilia 5.

Position at rest more like *Tisheria* than *Gracilaria*, body obliquely raised in front and forelegs applied to body. Antennæ are laid along and over the forewings. Before settling down to rest the moth whirls the antennæ in rotary motion and raises the body up and down with an impatient motion, alternately bending and stretching forelegs. The genus is allied to *Ornix*, but reminds one much of *Tisheria* and *Bedellia*.

METRIOCHROA PSYCHOTRIELLA, new species.

(Plate I, fig. 13.)

Antennæ bluish black annulated with white, last joint white. Labial palpi light yellow, with a ring around the middle of terminal joint black. Maxillary palpi white. Face white, vertex white with bluish scales intermixed; sides of head, thorax, and anterior wings dark brown, nearly black, with a bluish metallic luster and with sparse bluish-white scales uniformly intermixed. Cilia dark gray with two apical transverse lines black. Hindwings light purplish grey, cilia darker. Abdomen of the general hue, with the anterior margin of each segment light yellow. Legs yellow; tarsi annulated with bluish black.

Alar expanse, 5.5 to 5.8 mm.

Described from six specimens bred from mines on *Psychotria undata*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4955, U.S.N.M.

Egg is laid on upper surface of the leaf; mine is a long (15 mm.), winding, narrow serpentine on upper side of leaf, with the black frass deposited in quite regular transverse lines. Gradually it becomes broader (2 to 3 mm.) and ends in a small, oblong (5 to 6 mm.), broad blotch, drawn together longitudinally into one or more ridges, beneath which the larva pupates without forming any cocoon, the mine being simply slightly silk lined. The pupa protrudes when the moth issues.

Larva is most singular; cylindrical, somewhat flattened, with no trace of thoracic feet; in their place three pairs of polished circular plates; five pairs of well-developed abdominal feet, one pair on each of joints 6, 7, 8, 9, 10, counting the head as first joint; no anal feet.

MARMARA Clemens.

MARMARA GUILANDINELLA, new species.

Antennæ  $\frac{3}{4}$ , rather thick, with large pecten beneath basal joint, and sparsely ciliated throughout; metallic black. Labial palpi slightly curved, in the living insect reaching vertex, in dead specimens por-

rected; second joint a little rough with scales projecting at apex, third nearly as long as second, blunt, both joints silvery white, with apex black. Maxillary palpi white, moderate, ascending, clothed with long spreading black hairs, especially at tip. Face smooth, silvery white. Head smooth, silvery white with fuscous scales. Thorax and forewings deep bluish black with metallic reflections; a narrow silvery white fascia at basal third, at middle of costa a silvery white spot and nearly opposite, but a little farther outward, a dorsal one. Farther out in the costal cilia is a third costal white spot. Cilia bluish black with tips white. Hindwings purplish grey, cilia 4, lighter. Abdomen bluish black with silvery reflections; anal tuft silvery grey; legs smooth, black with white annulations.

Alar expanse, 4.8 mm.

Described from a single male in fine condition, bred March 27, 1900, from material collected at Palm Beach, Florida, by Dr. Dyar.

*Type*.—No. 4956, U.S.N.M.

Larva mines the twigs of *Guilandina bonducella* in the same fashion as *Marmara salictella* in willow branches. Mine is a very long, narrow, irregular serpentine, going upward or downward very near the surface just under the epidermis. Larva is very flat, much incised between the segments, tapering backward; head very flat, mandibles large, projected far out in front of the head. At maturity it assumes a similar wine-red coloration of transverse bands as *salictella*: Cocoon white, spun outside the mine.

The species is quite near to *salictella*, a bred series of which is now before me, but it is smaller, darker, and with the second fascia in *salictella* represented by the costal and the dorsal spot.

The venation in both species is as follows: Forewing elongate ovate; 7 veins, 3 to 5 absent, 8 and 9 absent, 1b simple, 6 and 7 separate, one to each side of the apex. Hindwing setiform, 5 veins; 8 short, 7 along costa to apex, 5 and 6 from common independent stalk from base, 3 and 4 absent. (See Plate I, fig. 14.)

#### LITHOCOLLETIS Hübner.

##### LITHOCOLLETIS VERBESINELLA, new species.

Antennæ silvery white with black annulations, last 4 or 5 joints white. Labial palpi silvery white. Face golden iridescent white; tuft on head reddish yellow with a few white scales. Thorax and forewing deep golden yellowish brown. At basal third is a silvery white costal streak directed outward, strongly margined externally with black. At the middle of the wing is a silvery white, outwardly angulated fascia, and at the beginning of costal cilia another similar one, both strongly margined externally with black. Just before apex is a third small silvery white fascia, with a few scattered black scales

externally. Cilia light golden yellow. Hindwings dark silvery gray, cilia a shade lighter. Abdomen above, dark gray; underside silvery and golden yellow. Legs silvery with broad black annulations.

Alar expanse, 6.4 mm.

Described from a single specimen, bred from *Verbesina virginica*, collected at Palm Beach, Florida, by Dr. Dyar.

*Type*.—No. 4957, U.S.N.M.

The larva makes a roomy tent-shaped mine on the under side with the lower epidermis much wrinkled longitudinally, and pupates in an elongate white cocoon suspended at both ends like a hammock inside the mine. Larva belongs to the cylindrical group.

I made no further notes on the larva, and even omitted to write Dr. Dyar for more material to breed from, because I was convinced that it was the mine and larva of *Lithocolletis elephantopodella*, Frey and Boll, which I have bred commonly from exactly similar mines on *Verbesina* at Washington, D. C. The moth, however, while belonging in the same group with *elephantopodella* and *ambrosiella*, is decidedly different, notably in the more angulated and darker margined first fascia and the complete, angulated second fascia instead of the costal and dorsal streak of *elephantopodella*.

#### CORISCIUM Zeller.

##### CORISCIUM RANDIELLA, new species.

Antennae longer than forewing, grey, each joint tipped with black. Labial palpi long, curved, second joint strongly tufted beneath, especially toward apex, terminal one nearly as long and somewhat rough in front; white with tips grey. Maxillary palpi distinct, smooth, white. Face silvery white. Head white with central parts mouse grey. Thorax mouse grey with two lateral longitudinal white lines. Forewings mouse grey with a golden luster. Three outwardly directed silvery white costal streaks, all thinly black margined, reach nearly to the fold. From base to apex a dark-edged undulating silvery white line with the tops of the three undulations touching the fold and the three bases of these undulations on the dorsal edge. The black margin of the last undulation and that of the last costal streak unite in a small longitudinal spot. Cilia white with a short black dash on the costal side and two short parallel black lines on the dorsal sides. Hindwings light silvery gray. Legs silvery white with deep black annulations on the tarsi.

Alar expanse, 5.8 to 6.1 mm.

Described from 5 specimens bred from *Randia aculeata*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4958, U.S.N.M.

The egg is laid at the edge of a leaf on the under side; the young

larva bores through to the upper side, forming a more or less trumpet-shaped upper blotch extending along the edge of the leaf. When fresh the mine is not much discolored, but when old it becomes whitish brown. Mr. Kinzel says that this species becomes very abundant and injurious to the *Randia* in summer time.

Larva is cylindrical, with 14 legs, yellow; mandibles light brown. When mature, it is about 4.5 mm. long; it leaves the mine and makes a slight fold on under side of a leaf, drawing the edge down with transverse cables of white silk, under which the oval white cocoon is spun.

#### CHILOCAMPYLA, new genus.

(Type *Chilocampyla dyariella* Busek.)

Antennæ nearly  $1\frac{1}{2}$ , simple; basal joint somewhat flattened and enlarged, with thick covering of scales, and with large heavy pecten beneath, giving the appearance of an eyecap, although not thus used; antennæ at rest, being porrected obliquely in front. Labial palpi long, slender, smooth, curved, in the living insect, erected before and kept close to face, reaching the vertex; in dead specimens drooping, laterally divergent; second joint a little thickened at apex; terminal nearly as long as second, pointed. Maxillary palpi moderate, porrected, slightly curved upward. Tongue very long, scaled at base. Head and face smooth; head elongate narrow; face retreating. Eyes large, prominent. Anterior wings narrow, much elongated; in female pointed, and of normal form; in male with a costal depression at two-thirds from base, making the wing one-third narrower at that point, widening out again toward tip, which is rather blunt. The males can at once be distinguished by this peculiarity. Posterior wings setiform; costa excised from basal third to apex.

*Venation*.—In female: 11 veins; 3 absent, 6 and 7 shortly stalked, 7 to costa, 1<sup>b</sup> simple; in the male the costal depression causes a narrowing of the cell and obliterates vein 10; cell widens out again after the costal depression, and venation is otherwise identical with that of the females. Hindwings: 8 veins; 7 to apex; cell open between 4 and 5.

Anterior tibiae thickened at apex, with smooth scales. Middle tibiae smooth, thickened at end, with heavy tuft of scales; together with anterior legs prominently displayed, *Gracilaria*-fashion, when insect is at rest. Posterior tibiae above with two longitudinal rows of bristles; inner spurs at the end of tibia several times as long as outer spurs.

An offshoot from *Gracilaria*, and allied to *Spanioptila* Walsingham, which genus I know only from description; but differing in venation and the smooth middle tibiae. Also, apparently, by a much more strongly developed pecten on first antennal joint, besides the curved costa of the males.



## CHILOCAMPYLA DYARIELLA, new species.

(Plate I, fig. 15.)

Antennae straw-yellow, indistinctly annulated with a darker shade; first joint and pecten in front deeper yellow, with bluish black edges; posterior side all black. Face, head, and labial palpi light shining straw-yellow; third joint of palpi with a black annulation around the base and one around the middle. Maxillary palpi yellow with tips black. Eyes in the living insect brilliant brick-red, in dead specimens dark brown. Thorax dark straw-colored, shoulders light brown. Forewing: ground color straw-yellow with gray, purple and black scales intermixed. Basal half of costal edge whitish with black dots; reaching from basal fourth to middle of wing and inward; beyond fold is a large, ill-defined, triangular, costal spot, darkest at the edges, with the dark scales predominating. Just before apex is a thin, indistinct, transverse line of white scales.

In the male the portion of the wing just below the costal depression is somewhat deeper yellow and without intermixed darker scales. Cilia dark purple. Hindwings and cilia light purple; the entire insect in some lights with brilliant purple reflections. Fore and middle legs yellow with the enlarged parts of the tibiae purplish black. Tarsi with purple annulations. Abdomen dark purple above; entire body beneath silvery white.

Alar expanse, 7 to 8.5 mm.

Described from more than 30 specimens, bred February 18 to March 20, 1900, from material collected at Palm Beach, Florida, by Dr. Dyar, in honor of whom this species is named.

*Type*.—No. 4959, U.S.N.M.

Food plant two species of *Eugenia*. The mine is one of the most interesting I have met with. Egg is laid on the underside of the leaf and mine begins as a long narrow line along the edge of the leaf for about 25 mm. and then turning inward it suddenly broadens out in a large bladder-like blotch nearly covering the entire leaf. The upper and lower epidermis are separated and the leaf is inflated and yields to pressure like an air cushion, being from 3 to 6 mm. thick. Mine shows whitish green on the underside, discolored with purple on the upperside. The inside of the mine looks as if overgrown with a small, whitish pearly fungus, and before I had examined it carefully and found the larva and the early part of the mine I took the phenomena to be the result of a fungous disease. Inside this roomy mine is found a cylindrical, clear, transparent larva with sparse white hairs and with 14 legs. Head is light brown with darker reddish brown sutures and two black eyespots.

When full grown, it is about 4.5 mm. long; it comes out of the mine, turns vivid wine red, and spins a dense, oval, yellowish grey cocoon

in a slight fold on leaf. The average cocoon measures 7 by 4 mm. The pupa is at first white, with black eyes, part of which the enlarged first antennal joint covers; the antennæ reach far beyond anal tip. On the front of the head is a stout, sharp, brown spine, used to cut the cocoon when the imago issues.

When mature the pupa assumes the coloration of the imago. The pupa stage lasted in a warm room about three weeks. The pupa shell is left protruding from the cocoon. Position of imago at rest like that of *Gracilaria*, but with antennæ porrected obliquely in front.

### EUCOSMOPHORA, Walsingham.

#### EUCOSMOPHORA SIDEROXYLONELLA, new species.

Antennæ  $\frac{5}{4}$ , simple, basal joint without pecten, dark fuscous at base with a cupreous sheen. At rest, porrected straight in front of the insect. Labial palpi long, smooth; third joint as long as second, in the living insect recurved, overarching the vertex, kept rather far from face; in dead specimen laterally divergent. Color bright golden. Maxillary palpi small but distinct, golden. Eyes in the living insect brilliant coral red. Head and thorax smooth, shining metallic golden. Forewings bright metallic golden with cupreous reflections. Seen under a lens the basal and apical part of the wing is pure gold, the intervening space coppery, but the reflections are so strong on both colors that the entire wing sometimes appears all gold, while in other lights the cupreous predominates. From the base is an elongated, costal, black streak, extending nearly one-fourth of the wing and interrupted before the middle by two golden dots. About the middle of the wing is another elongated, narrow, subcostal black streak with bright metallic blue reflections. Opposite it, on the dorsal edge, begins a third elongated black streak, extending obliquely upward and outward nearly to the costal margin, and from there to apex. The portion of the wing below and outside this line is in some lights dusky black with bright golden streaks, but in other lights the black is obliterated by the strong golden reflections. Cilia and hindwings dark grey, with bronze reflections. Abdomen dark fuscous, with bronzy reflections. Legs golden; posterior tibiae clothed with rather short, stiff, spiny hairs above; middle tibiae smooth; underside of body silvery white.

Alar expanse, 8 mm.

Described from a single specimen, bred February 27, 1900, from mastic (*Sideroxylon pallidum*) collected at Palm Beach, Florida, by Dr. Dyar.

*Type*.—No. 4960, U.S.N.M.

I am not acquainted with this genus except through Lord Walsingham's description, but I have little doubt that this species belongs to

it, although the single specimen does not allow a thorough examination of the venation. It is a splendid, shining little insect, which "ought" to go in the genus *Eucosmophora* (who carries a beautiful ornament). It seems very near *E. dives* Walsingham, but there is no trace of any white costal spot, nor any white at all on the forewing, as is the case with *E. dives*.

The larva is cylindrical, with 14 legs, yellow, with darker yellow head and brown mandibles. It mines the upper side of young leaves of *Sideroxylon*, at the same time drawing the leaf longitudinally into a roll or fold, which covers up the mine out of sight.

#### GRACILARIA Haworth.

##### GRACILARIA BURSERELLA, new species.

Antennae longer than forewing, purplish gray, becoming gradually lighter outward, silvery white at tip. Labial palpi white on the outside with purple shadings and tip of terminal joint black. Maxillary palpi moderate, porrected, white. Face white. Head and thorax yellowish brown with strong purple reflections; forewing brown with strong purple reflections; along costa a shade lighter, more yellowish. Small irregular black dots all over the wing; just before tip an indistinct narrow, black fascia; cilia dark gray. Hindwing dark purplish gray. Cilia lighter. Abdomen dark purple, underside white, speckled with purple, legs white with brown shadings; tuft on middle tibia dark purplish brown.

Alar expanse, 9.6 and 10.4 mm.

Described from two males, bred February 21, 1900, from *Bursera gummiifera*, "gumbo-limbo," collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4961, U.S.N.M.

Larva is cylindrical, yellow, without markings; 14 feet. At first it makes a small triangular mine between midrib and another rib on underside of the leaf. Afterwards it folds the edge of the leaf downward. The species is quite near to *G. violacella* Clemens.

##### GRACILARIA SEBASTIANIELLA, new species.

Antennae longer than forewing, shining fuscous. Labial palpi whitish with tips fuscous. Maxillary palpi white. Face whitish. Head and thorax yellowish. Forewing yellowish fuscous; from costa at basal third, directed obliquely inward, is a narrow white fascia; at middle of the wing is a dorsal white streak, parallel with the fascia and reaching to the fold. At apical third of the wing is a costal whitish streak, perpendicular to the dorsal streak and also reaching the fold. Extreme tip of wing and the adjoining cilia white with a black dot on apex. All of these white markings are strongly margined

internally with black. At apical fourth, between the last costal streak and apex, is an oval black spot with the center white and the entire costal edge is slightly mottled with black. Cilia dark fuscous with a whitish line parallel with the dorsal edge. Hindwings and cilia dark gray. Abdomen dark fuscous, anal tuft yellowish. Legs silvery yellow; tarsi with black annulations.

Alar expanse, 7.6 to 8.4 mm.

Described from 3 specimens, bred from *Sebastiania lucida*, collected by Dr. Dyar at Palm Beach, Florida.

*Type*.—No. 4962, U.S.N.M.

Larva makes a brown, irregular, elongated upper blotchmine, with the upper epidermis drawn into a longitudinal ridge. It leaves the mine and spins its white cocoon in a sharp fold at the edge of the leaf.

#### PHYLLOCNISTIS Zeller.

Of the American species placed under this genus *P. ampelopsiella* Chambers, *liriodeubronella* Clemens, *populiella* Chambers, *vitifoliella* Chambers, *vitigenella* Clemens, and *liquidamberisella* Chambers all conform well with the definition of that genus. So does *P. magnoliaella* Chambers, the imago of which has never been described, but which I have bred and found to be a distinct species.

*P. smilacisella* Chambers is known only from the mine, and is unknown to me except from description.

The imago of *P. erechthisella* Chambers has never been described, but I have bred a large series of it from *Erechtites hieracifolia*. I have also a large series of *P. insignis* Frey and Boll bred from *Senecia aureus*. The mines of both are among the earliest found in spring, and several generations are produced during summer until late fall. The insects overwinter as imago like the other species of the genus. Living material of both is now before me, and I am unable to find any difference between them in any stage. Frey's name must stand. Dr. Edward Meyrick, of England, has kindly called my attention to the fact, that this species is not a true Phylloenistis, according to the present definition of that genus. *P. insignis* has the antennæ somewhat longer than the forewings instead of somewhat shorter, and the basal joint is in no way dilated into an eyecap. Frey says about his type of this species: "Wir glauben über die generische Stellung des reizenden Thierchens uns nicht zu täuschen," and gets out of the difficulty by stating: "Fühler defect."

Otherwise, in venation, characters of the palpi, head and posterior legs, it agrees perfectly with Phylloenistis and the general pattern of the wings is also much like this genus.

As the early stages and the work and habits of this species are also identical with those of the genus, I should propose to widen the definition of Phylloenistis rather than to erect a new genus, the more so

on account of the following newly discovered Florida species, which is an intermediate form.

It has the antennæ shorter than the forewing and has a slight indication of an eye-cap; also in coloration it comes between the "red" *insignis* and the "white" undoubted *Phyllocnistis* group, although it is nearest to the former.

PHYLLOCNISTIS INTERMEDIELLA, new species.

Antennæ nearly as long as forewing, silvery yellow, basal joint slightly enlarged and flattened. Labial palpi silvery white, pointed, drooping. Maxillary palpi obsolete. Head and thorax light silvery gray, anterior wing, basal two-thirds silvery gray, somewhat lighter than in *P. insignis* Frey and Boll, but not the pure white as in the grape-feeding species. In the costal part of the wing, beginning at base and reaching to the apical third of the wing is a sharply defined, light-golden, spindle-shaped streak, nearest to the costal margin at base of wing, nearest to the fold at apical third.

The first part of apical third of the wing is evenly overlaid with dark gray, then follows a large oval bright orange-colored black-centered spot, and just at apex is a large deep black dot emitting into the white cilia five black streaks, three into the costal and two into the dorsal part. The cilia is very long, dorsal and costal part about equally developed, and it has besides these five black streaks one more costal, directed toward the base of wing, and in the dorsal part is a dark fuscous streak, parallel with the dorsal margin. Hindwing dark gray; cilia 5, silvery white. Abdomen above dark fuscous, below silvery white. Legs silvery white, last joint of tarsi black. Posterior tibiae with long stiff bristles above.

Alar expanse, 4.2 mm.

*Type*.—No. 5189, U.S.N.M.

Bred during early February from leaves of *Mastic*, *Sideroxylon* (*Masticodendron*) *pallidum*, collected by Dr. Dyar, at Palm Beach, Florida.

The mine is on the underside and of the usual *Phyllocnistis* type; a long, whitish, irregular serpentine just below the epidermis, confined to one side of the leaf, not crossing the main rib. Total linear length of an average mine about 10 inches; ending at the edge of the leaf, where a little pucker is made, the leaf slightly drawn, and the cocoon formed within the mine.

In a few cases mines were found on the upper side of the leaf.



## EXPLANATION OF PLATE I.

- Fig. 1. Venation of *Aristotelia irae* Busck.  
2. Venation of *Aproaerema crotolaricella* Busck.  
3. Venation of *Gnorimoschema terracottella* Busck.  
4. Venation of *Didactylota snellenella* Walsingham.  
5. Venation of *Nealyda pisoniae* Busck.  
6. Venation of *Anacampsis laguncularicella* Busck.  
7. Venation of *Trichotapha melantherella* Busck.  
8. Venation of *Depressaria amyrisella* Busck.  
9. Venation of *Blastobasis guilandinae* Busck.  
10. Venation of *Homaledra heptathalamia* Busck.  
11. Gallery of *Homaledra heptathalamia* Busck (natural size).  
12. Venation of *Podiasa chiococcella* Busck.  
13. Venation of *Metriochoera psychotriella* Busck.  
14. Venation of *Marmara salicella* Clemens.  
15. Venation of *Chilocampila dyariella* Busck.